

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Niranjan Damera-Venkata                      Art Unit : 2625  
Serial No. : 10/698,895                                      Examiner : Vo, Quang N  
Filed : Oct. 31, 2003                                      Confirmation No.: 2961  
Title : ERROR DIFFUSION HALFTONING WITH BANDPASS NOISE SHAPING

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RESPONSE TO ELECTION REQUIREMENT

In the Office action dated November 27, 2007, the Examiner has indicated that an election is required between the asserted "species" I -VI. In response to this election requirement, applicant provisionally elects "species" II with traverse. Claims 1-20 and 22-24 read on the elected "species" II.

As explained in detail below, however, the election requirement is submitted to be improper because: (A) it would not be a serious burden for the Examiner to continue examining the application on the merits without the Election Requirement; (B) the Examiner is not authorized under the Rules to issue the Election Requirement; (C) the Examiner has failed to establish a *prima facie* case for requiring an election of the claims; and (D) no valid reason exists for dividing among the asserted "species".

I. OVERVIEW OF THE ELECTION REQUIREMENT

In the Office action dated Nov. 27, 2007, the Examiner has required an election between the following asserted "species":

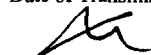
- I. Species of error diffusion method implemented in a printer's processor (paragraph 38 and figure 4).

CERTIFICATE OF TRANSMISSION

I hereby certify that this document is being transmitted to the Patent and Trademark Office via electronic filing.

January 30, 2008

Date of Transmission



(Signature of person mailing papers)

Edouard Garcia

(Typed or printed name of person mailing papers)

- II. Species of error diffusion method implemented in a processor of computer (paragraph 38 and figure 4).
- III. Species of error diffusion method implemented in model (figure 1b).
- IV. Species of error diffusion method implemented in model (figure 1c).
- V. Species of error diffusion method implemented in model (figure 2).
- VI. Species of error diffusion method implemented in model (figure 3).

The only explanation given by the Examiner in support of the election requirement is the following:

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variant of each other based on the current record.

Contrary to the Examiner's position, FIGS. 1b and 1c do not show implementation of an "error diffusion method." Instead, FIG. 1b shows a model 120 of the system 100 (shown in FIG. 1a) in which the quantizer 110 has been replaced by a noise source 122 (see ¶ 19) and FIG. 1c shows a response of the model 120 (see ¶ 20). Thus, neither FIG. 1b nor FIG. 1c shows an implementation of an "error diffusion method," as asserted by the Examiner. Moreover none of the pending claims reads on the model 120 shown in FIG. 1b nor do any of the pending claims read on the response of the model 120 shown in FIG. 1c. Therefore, there is no basis whatsoever for the Examiner's inclusion of the asserted "species" III and IV in the election requirement.

## II. REASONS THE ELECTION REQUIREMENT SHOULD BE WITHDRAWN

### A. IT WOULD NOT BE A SERIOUS BURDEN FOR THE EXAMINER TO CONTINUE EXAMINING THE APPLICATION ON THE MERITS

MPEP § 803.01 provides that (emphasis added):

If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the

merits, even though it includes claims to independent or distinct inventions.

The Examiner already has searched and examined the entire application on the merits before issuing the above-mentioned Election Requirement. The Examiner's Election Requirement therefore is improper at the present stage of prosecution because it would not be a serious burden for the Examiner to continue examining the application on the merits without the Election Requirement.

A summary of the prosecution history of the application is set forth below.

10/31/03      The application was filed with:

claims 1-6 relating to an error diffusion halftoning method, claims 7-8 and 9-14 relating to apparatus for performing error diffusion halftoning, claims 15-20 relating to an article for a processor, and claim 21 relating to a printer (cf. asserted "species" I);

dependent claims 5, 12, and 19 relating to the embodiment of FIG. 2, which contains two low-pass FIR filters (cf. asserted "species" V); and

dependent claims 6, 13, and 20 relating to the embodiment of FIG. 3, which contains a single IIR filter (cf. asserted "species" VI).

6/5/07      The Examiner mailed the first Office action on the merits in which the Examiner examined all of the pending claims and issued the following claim rejections:

claims 4, 11, and 18 rejected under 35 U.S.C. § 112, second paragraph, as being indefinite; and

claims 1-3, 5-10, and 12-21 rejected under 35 U.S.C. § 102(b) over Damera-Venkata ("Color Error Diffusion With Generalized Optimum Noise Shaping").

10/5/07      Applicants mailed an Amendment in which claims 1-14 were amended and claims 22-25 were added. The claim amendments preserved the original relationships between the subject matter defined in the original claims and the embodiments disclosed in the specification. In particular,

claims 1-6 relating to an error diffusion halftoning method, claims 7-8 and 9-14 relating to apparatus for performing error diffusion halftoning, claims 15-20 relating to an article for a processor, and claim 21 still respectively relate to a printer (cf. asserted "species" I);

dependent claims 5, 12, and 19 still respectively relate to the embodiment of FIG. 2, which contains two low-pass FIR filters (cf. asserted "species" V); and

dependent claims 6, 13, and 20 still respectively relate to the embodiment of FIG. 3, which contains a single IIR filter (cf. asserted "species" VI).

11/27/07      The Examiner mailed the election requirement that is the subject of the instant Petition.

The Examiner already has fully and completely searched and examined all of the asserted "species" I, II, V, and VI on the merits in the first Office action dated June 5, 2007.<sup>1</sup> In particular, in the Office action dated November 27, 2007, the Examiner is requiring applicant to elect between:

- the asserted "species" I (which corresponds to the embodiment of the machine 410 in a printer (see FIG. 4 and ¶ 38));
- the asserted "species" II (which corresponds to the embodiment of the machine 410 in a computer (see FIG. 4 and ¶ 38));
- the asserted "species" V (which corresponds to the system 100 (see FIG. 1a) in which the element 112 includes two FIR filters (see FIG. 2 and ¶ 32)); and
- the asserted "species" VI (which corresponds to the system 100 (see FIG. 1a) in which the element 112 includes a single IIR filter (see FIG. 3 and ¶ 34)).

In the first Office action, however, the Examiner fully and completely searched and examined:

- the original claim 21, which relates to the embodiment of the machine 410 in a printer;

---

<sup>1</sup> As explained in § I of this Response, the subject matter corresponding to the Examiner's asserted "species" III and IV are not in fact species of the claimed invention.

- the original claims 1-20, which relate to the embodiment of the machine 410 in a computer;
- the original claims 5, 12, and 19, which relate to the embodiment of the system 100 (see FIG. 1a) in which the element 112 includes two FIR filters; and
- the original claims 6, 13, and 20, which relate to the embodiment of the system 100 (see FIG. 1a) in which the element 112 includes a single IIR filter.

Although independent claims 1, 7, and 9 have been amended, these amendments did not change the invention defined in these claims to a species that is different from the species originally defined by these claims.

Therefore, it would not be a serious burden for the Examiner to continue examining the application on the merits, regardless of whether the application includes claims that are independent and distinct.

For at least this reason, Applicant requests that the Examiner reconsider and withdraw the election requirement.

**B. THE EXAMINER IS NOT AUTHORIZED TO ISSUE THE ELECTION REQUIREMENT**

The Examiner is not authorized to issue the election requirement data November 27, 2007, because the Rules do not permit the Examiner to issue an election requirement at the current stage of prosecution.

In particular, 37 CFR 1.146, which authorizes the Examiner to require an election of species, applies only to "... the first action on an application containing a generic claim to a generic invention (genus) and claims to more than one patentably distinct species embraced thereby...."

The instant application was filed with generic claims to an invention generic to the asserted "species" asserted by the Examiner. For example, each of independent claims 1, 7, and 9 defines subject matter that is generic with respect to each of: (1) the embodiment of the machine 410 in a printer (cf. asserted "species" I); (2) the embodiment of the machine 410 in a computer (cf. asserted "species" II); (3) the embodiment of the system 100 (see FIG. 1a) in which the element 112 includes two FIR filters (cf. asserted "species" V); and (4) the

embodiment of the system 100 (see FIG. 1a) in which the element 112 includes a single IIR filter (cf. asserted "species" VI).

In the first Office action, the Examiner did not "require the applicant in the reply to that action to elect a species of his or her invention to which his or her claim will be restricted," as provided in 37 CFR § 1.146. Instead, the Examiner fully and completely searched and examined on the merits claims relating to all of the asserted "species".

Thus, the Examiner is not authorized under 37 CFR § 1.146 to issue the election of species requirement at the present stage of prosecution. The Examiner also is not authorized to issue the election of species requirement under 37 CFR § 1.145 because applicant did not present any claim that is directed to an invention distinct from and independent of the invention previously claimed.

For at least this additional reason, Applicant requests that the Examiner reconsider and withdraw the election requirement.

C. THE EXAMINER HAS FAILED TO ESTABLISH A *PRIMA FACIE* CASE FOR REQUIRING THE PROPOSED ELECTION OF CLAIMS

1. Introduction

In the Office action dated November 27, 2007, the Examiner has required an election between:

- the asserted "species" I (which corresponds to the embodiment of the machine 410 in a printer (see FIG. 4 and ¶ 38));
- the asserted "species" II (which corresponds to the embodiment of the machine 410 in a computer (see FIG. 4 and ¶ 38));
- the asserted "species" V (which corresponds to the system 100 (see FIG. 1a) in which the element 112 includes two FIR filters (see FIG. 2 and ¶ 32)); and
- the asserted "species" VI (which corresponds to the system 100 (see FIG. 1a) in which the element 112 includes a single IIR filter (see FIG. 3 and ¶ 34)).

2. Election between "Species" I and II and between "species" V and VI

The specification discloses that the asserted "species" I and II are related. For example, the specification discloses that the same generic machine 410 (see FIG. 4 and ¶ 37) can be embodied in a printer corresponding to the asserted "species" I or a computer corresponding to the asserted "species" II (see, e.g., ¶ 38).

The specification also discloses that the asserted "species" V and VI are related. For example, the specification discloses a system 100 that includes an element 112 that is implemented in a first embodiment by the subject matter corresponds to the asserted "species" V (see ¶ 32 and FIGS. 1 and 2) and is implemented in a second embodiment by the subject matter corresponding to the asserted "species" VI (see ¶ 34 and FIGS. 1 and 3).

In the case of related inventions, MPEP § 806.05(j) explains that, for related product inventions or related process inventions that are not in a combination/subcombination relationship, the inventions are distinct if (emphasis added):

- (A) the inventions as claimed do not overlap in scope, i.e., are mutually exclusive;
- (B) the inventions as claimed are not obvious variants; and
- (C) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect. See MPEP § 802.01.

The burden is on the examiner to provide an example to support the determination that the inventions are distinct, but the example need not be documented.

The only "explanation" given by the Examiner in support of the election requirement is the following standard boilerplate:

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

In this "explanation," the Examiner has attempted to address prong (A) of MPEP § 806.05(j) with the statement that "claims to the species recite the mutually exclusive characteristics of such species."

The Examiner also has attempted to address prong (B) of MPEP § 806.05(j) with the statement that "these species are not obvious variants of each other based on the current record." This statement, however, is inadequate to make the showing required under prong (B). In particular, MPEP § 808.01 explains that (emphasis added):

The particular reasons relied on by the examiner for holding that the inventions as claimed are either independent or distinct should be concisely stated. A mere statement of conclusion is inadequate. The reasons upon which the conclusion is based should be given.

With respect to prong (B) of MPEP § 806.05(j), the Examiner's statement that "...these species are not obvious variants of each other based on the current record" amounts to no more than a statement of conclusion that, under MPEP § 808.01, is inadequate to support the required election among species.

The Examiner has not provided any showing whatsoever that the required prong (C) of MPEP § 806.05(j) is met by his proposed election requirement.

Thus, the Examiner's election requirement is premised solely on his conclusion that the asserted "species" are mutually exclusive from each other. Under MPEP § 806.05(j), however, mutual exclusivity is insufficient by itself to establish that the species are either independent or distinct. Therefore, the Examiner has not made the showing required under MPEP § 806.05(j) and, consequently, has not established a *prima facie* basis for requiring an election between the asserted "species" I and II nor has he established a *prima facie* basis for requiring an election between the asserted "species" V and VI.

3. Election between either of "species" I and II and any of the "species" V and VI

The specification discloses that both "species" V (i.e., the system 100 (see FIG. 1a) in which the element 112 includes two FIR filters (see FIG. 2 and ¶ 32)) and "species" VI (i.e., the system 100 (see FIG. 1a) in which the element 112 includes a single IIR filter (see FIG. 3 and ¶ 34)) can be implemented by the generic machine 410 (see ¶¶ 37-38 and FIG. 4). Moreover, the



subject matter of “species” V and VI are claimed in claims that depend from independent claims encompassing the subject matter of “species” I (see, e.g., dependent claims 5 and 6, which depend from independent claim 1). Thus, there is no basis whatsoever for the Examiner’s position that the “species” I and II are mutually exclusive with respect to each of the “species” V and VI (see, e.g.: MPEP § 806.05(j)(A); and MPEP § 806.05: “Related inventions in the same statutory class are considered mutually exclusive, or not overlapping in scope, if a first invention would not infringe a second invention, and the second invention would not infringe the first invention”).

Therefore, the Examiner has not established a *prima facie* basis for requiring an election between either of “species” I and II and any of the “species” V and VI.

4. Election between either of “species” III and IV and any of the “species” I, II, V, and VI

As explained above in § I, FIGS. 1b and 1c do not show implementations of an “error diffusion method,” contrary to the Examiner’s position.

Instead, FIG. 1b shows a model 120 of the system 100 (shown in FIG. 1a) in which the quantizer 110 has been replaced by a noise source 122 (see ¶ 19) and FIG. 1c shows a response of the model 120 (see ¶ 20). Thus, neither FIG. 1b nor FIG. 1c shows an implementation of an “error diffusion method,” as asserted by the Examiner. Moreover none of the pending claims reads on the model 120 shown in FIG. 1b nor do any of the pending claims read on the response of the model 120 shown in FIG. 1c.

Therefore, there is no basis whatsoever for the Examiner’s inclusion of the asserted “species” III and IV in the election requirement.

5. Conclusion

For at least these additional reasons, Applicant request that the Examiner reconsider and withdraw the election requirement.

D. No Valid Reason Exists for Dividing Among the Related Inventions

In general, if “the classification is the same and the field of search is the same and there is no clear indication of separate future classification and field of search, no reasons exist for dividing among related inventions” (MPEP § 808.02).

In support of the proposed election of species, the Examiner has stated that:

There is an examination and search burden for these patentable distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g. searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C.112, first paragraph.

In this statement, however, the Examiner has not provided any basis for believing that the classification of the asserted “species” I and II is not the same, nor has the Examiner provided any basis for believing that the field of search of the asserted “species” I, II, V, and VI is not the same. Instead, the Examiner’s rationale amounts to no more than a collection of unsupported conclusory statements. Moreover, the fact that the Examiner already has examined the subject matter corresponding to the asserted “species” I, II, V, and VI in the first Office action (see § IIA above) evidences the fact that the classification of the asserted “species” I and II is the same and the field of search of the asserted “species” I and II is the same. The Examiner also has not provided any clear indication that the classification of the asserted “species” I, II, V, and VI would be different in the future. Thus, the Examiner has not shown that separate examinations are required for the asserted “species” I, II, V, and VI. Accordingly, under MPEP § 808.02 “no reasons exist for dividing among related inventions” and the election requirement should be withdrawn.

For at least this additional reason, Applicant request that the Examiner reconsider and withdraw the election requirement.

Applicant : Niranjan Damera-Venkata  
Serial No. : 10/698,895  
Filed : Oct. 31, 2003  
Page : 11 of 11

Attorney's Docket No.: 200205808-1  
Reply Dated Jan. 30, 2008  
Reply to Office action dated Nov. 27, 2007

V. CONCLUSION

For at least the reasons explained above, Applicants request that the Examiner reconsider and withdraw the election requirement.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,

Date: January 30, 2008



\_\_\_\_\_  
Edouard Garcia  
Reg. No. 38,461  
Telephone No.: (650) 631-6591

Please direct all correspondence to:

Hewlett-Packard Company  
Intellectual Property Administration  
Legal Department, M/S 35  
P.O. Box 272400  
Fort Collins, CO 80528-9599